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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,566	08/30/2000	Kishore K. Chakravorty	884.315US1	8541

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EXAMINER

PHAN, THANH S

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/650,566

Applicant(s)

CHAKRAVORTY ET AL.

Examiner

Thanh S Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 11-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 28-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I in Paper No. 8 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Fukuoka (U.S. Pat. # 5,949,654).

Regarding claim 1. Fukuoka discloses a multilayer substrate for mounting a die comprising:

a ceramic portion comprising an embedded capacitor having first and second terminals (reference 408k); a first plurality of lands on a first surface thereof, including a first land coupled to the first terminal and a second land coupled to the second terminal, wherein the first and second lands are positioned to be coupled to corresponding power supply nodes of the die; and an organic portion comprising a plurality of conductors (reference 408j), including a first conductor coupling the first land to the first terminal and a second conductor coupling the second land to the second terminal (Figure 13).

Regarding claim 10. Fukuoka discloses the multilayer substrate recited in claim 1, wherein the organic portion comprises a plurality of layers, each comprising a portion of the plurality of conductors (Figure 13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka.

Regarding claim 7 and 8. Fukuoka discloses the multilayer substrate recited in claim 1 except for wherein the capacitor comprises at least one high permittivity layer. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify one layer to comprises a high permittivity layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416 (claim 7). Further, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. V. Bemis Co., 193 USPQ 8. (claim 8).

Regarding claim 9. Fukuoka discloses the multilayer substrate recited in claim 8 except for wherein the capacitor comprises a plurality of conductive layers interleaved with the high permittivity layers, such that alternating conductive layers are coupled to

the first and second lands, respectively. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Fukuoka's alternating layers with a plurality of conductive layers interleaved with the high permittivity layers, such that alternating conductive layers are coupled to the first and second lands, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka in view of Gregor et al. (U.S Pat # 5,354,955).

Regarding claim 2. Fukuoka discloses the multilayer substrate recited in claim 1 except for comprising a second plurality of lands on a second surface thereof, including a third land coupled to the first terminal and a fourth land coupled to the second terminal. Gregor et al. teaches that it is know to include a plurality of lands on the second surface of a substrate as set forth in Figure 1. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to comprises a second plurality of lands on the second surface of a substrate as taught by Gregor et al. in order to further connecting to another substrate.

Regarding claim 3. Fukuoka and Gregor et al. disclose the multilayer substrate recited in claim 2, except for wherein the pitch of the second plurality of lands is greater than the pitch of the first plurality of lands, and wherein the pitch is increased within the organic layer. It would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have the pitch of the second plurality of lands is greater than the pitch of the first plurality of lands, and wherein the pitch is increased within the organic layer, since applicant has not disclosed that the pitch of the second plurality of lands is greater than the pitch of the first plurality of lands, and wherein the pitch is increased within the organic layer solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the disclosed pitch.

Regarding claim 4. Fukuoka and Gregor et al. disclose the multilayer substrate recited in claim 2, except for wherein the first plurality of lands further comprises a fifth land positioned to be coupled to a corresponding signal node of the die, and wherein the second plurality of lands comprises a sixth land coupled to the fifth land via a conductive path that comprises one of the plurality of conductors. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further comprises a fifth land positioned to be coupled to a corresponding signal node of the die, and wherein the second plurality of lands comprises a sixth land coupled to the fifth land via a conductive path that comprises one of the plurality of conductors, since it was known in the art to increase the number of lands in corresponding to the number of the number of signal node.

Regarding claim 5. Fukuoka and Gregor et al. disclose the multilayer substrate recited in claim 4 except for wherein the pitch of the second plurality of lands is greater than the pitch of the first plurality of lands, and wherein the pitch is increased within the organic layer. It would have been obvious to one having ordinary skill in the art at the time of the

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invention was made to have the pitch of the second plurality of lands is greater than the pitch of the first plurality of lands, and wherein the pitch is increased within the organic layer, since applicant has not disclosed that the pitch of the second plurality of lands is greater than the pitch of the first plurality of lands, and wherein the pitch is increased within the organic layer solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the disclosed pitch.

Regarding claim 6. Fukuoka and Gregor et al. disclose the multilayer substrate recited in claim 2 except for wherein the third and fourth lands are positioned to be coupled to corresponding power supply nodes of an additional substrate subjacent to the multilayer ceramic substrate. However, Gregor et al. teaches that it is known to have additional lands to be coupled to an additional substrate as set forth in Figure 1. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have the third and fourth lands are positioned to be coupled to corresponding power supply nodes of an additional substrate subjacent to the multilayer ceramic substrate, as taught by Gregor et al. in order for connecting the said substrate to another substrate.

Regarding claims 28-30 the method steps are correspond to the obviousness rejection of the structural apparatus.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fukuoka [5,818,699] disclose a multi-Chip Module And Production Method Thereof.

Higgins, III [5,639,989] disclose a Shielded Electronic Component Assembly And Method For Making The Same.

Grobman et al. [5,060,116] disclose an Electronics System With Direct Write Engineering Change Capacity.

Carey [4,926,241] disclose a Flip Substrate For Chip Mount.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh S Phan whose telephone number is 703-305-0069. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David S Martin can be reached on 703-308-3121. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7722 for regular communications and 703-305-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TSP
May 5, 2002



DAVID S. MARTIN
PRIMARY EXAMINER
GROUP 2100

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